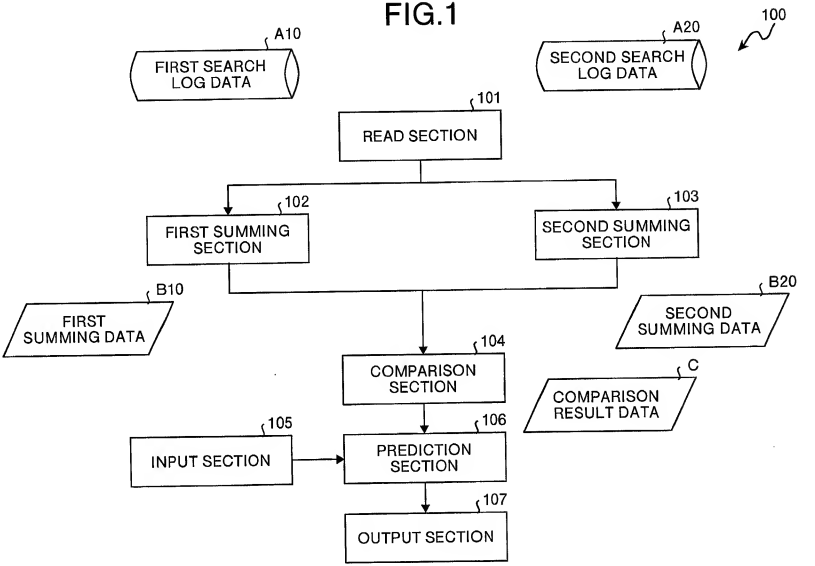
FIG.1


100
A10
FIRST SEARCH LOG DATA
A20
SECOND SEARCH LOG DATA
101
READ SECTION
102
FIRST SUMMING SECTION
103
SECOND SUMMING SECTION
B10
FIRST SUMMING DATA
B20
SECOND SUMMING DATA
104
COMPARISON SECTION
C
COMPARISON RESULT DATA
105
INPUT SECTION
106
PREDICTION SECTION
107
OUTPUT SECTION

20010"29805001

FIG.2

A10

DATE	TIME	KEYWORD
2000/11/01	01 : 10 : 00	CAMERA
2000/11/01	01 : 10 : 25	FILM
2000/11/01	01 : 10 : 26	CAMERA
2000/11/01	01 : 10 : 30	FILM
2000/11/01	01 : 10 : 20	CAMERA

B10

DATE	KEYWORD	USE FREQUENCY
2000/11/01	CAMERA	17
2000/11/01	FILM	10
2000/11/01	FLASH	10
2000/11/01	THREE LEGS	12

FIG.3

A20

DATE	TIME	KEYWORD
2000/11/01	11 : 10 : 50	NEW YEAR CARD
2000/11/01	11 : 10 : 41	NEW YEAR CARD
2000/11/01	11 : 10 : 56	STAMP
2000/11/01	11 : 11 : 10	NEW YEAR CARD
2000/11/01	11 : 11 : 35	STAMP

B20

DATE	KEYWORD	USE FREQUENCY
2000/11/01	NEW YEAR CARD	3
2000/11/01	RADIO	13
2000/11/01	STAMP	4
2000/11/01	TELEPHONE	11

FIG.4

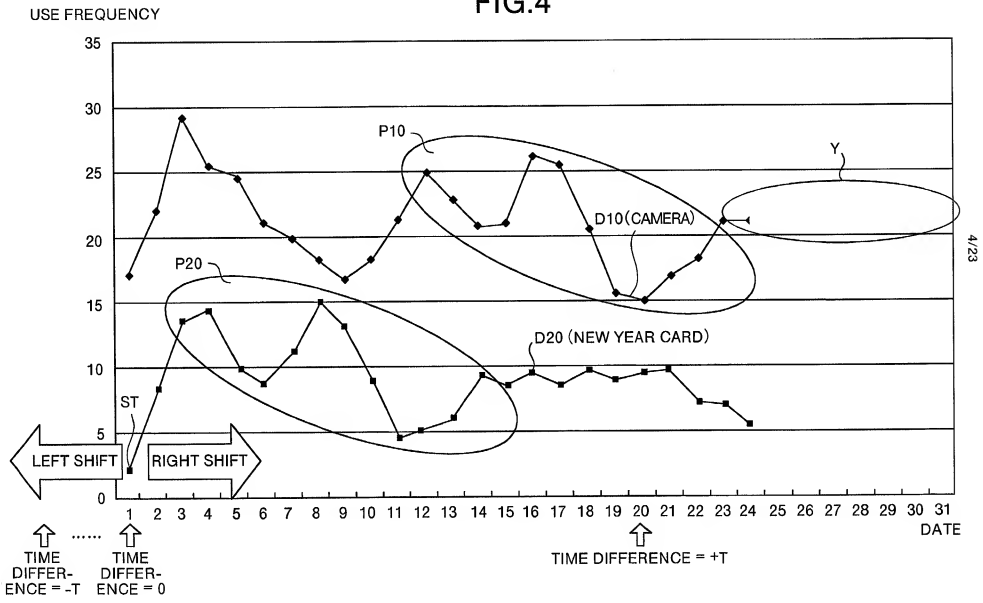

USE FREQUENCY
35
30
25
20
15
10
5
0
P10
Y
D10(CAMERA)
P20
D20 (NEW YEAR CARD)
ST
LEFT SHIFT
RIGHT SHIFT
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
DATE
TIME DIFFERENCE = -T
TIME DIFFERENCE = 0
TIME DIFFERENCE = +T

FIG.5

C

FIRST TIME SERIES DATA	SECOND TIME SERIES DATA	CORRELATION COEFFICIENT	TIME DIFFERENCE
CAMERA	NEW YEAR CARD	0.1	−T
▪▪▪▪			
CAMERA	NEW YEAR CARD	0.16	0
▪▪▪▪			
CAMERA	NEW YEAR CARD	0.68	+9
▪▪▪▪			
CAMERA	NEW YEAR CARD	0.2	+T
▪▪▪▪			
CAMERA	RADIO	0.05	−T
▪▪▪▪			

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FIG.6

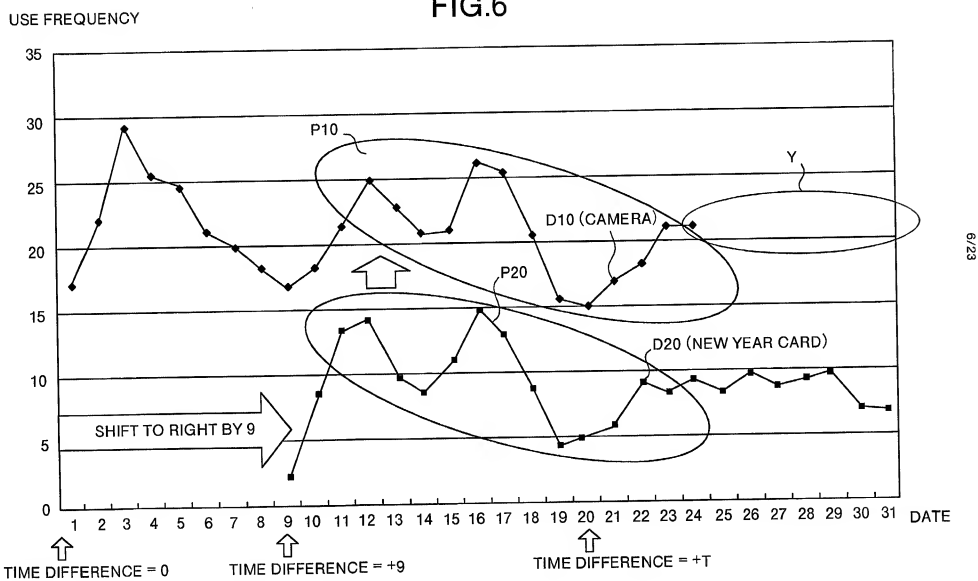
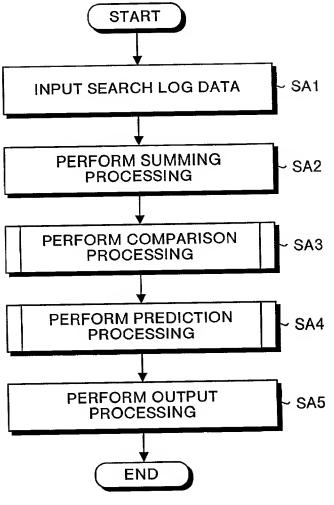

USE FREQUENCY
35
30
25
20
15
10
5
0
P10
Y
D10 (CAMERA)
P20
D20 (NEW YEAR CARD)
SHIFT TO RIGHT BY 9
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
DATE
TIME DIFFERENCE = 0
TIME DIFFERENCE = +9
TIME DIFFERENCE = +T

FIG.7



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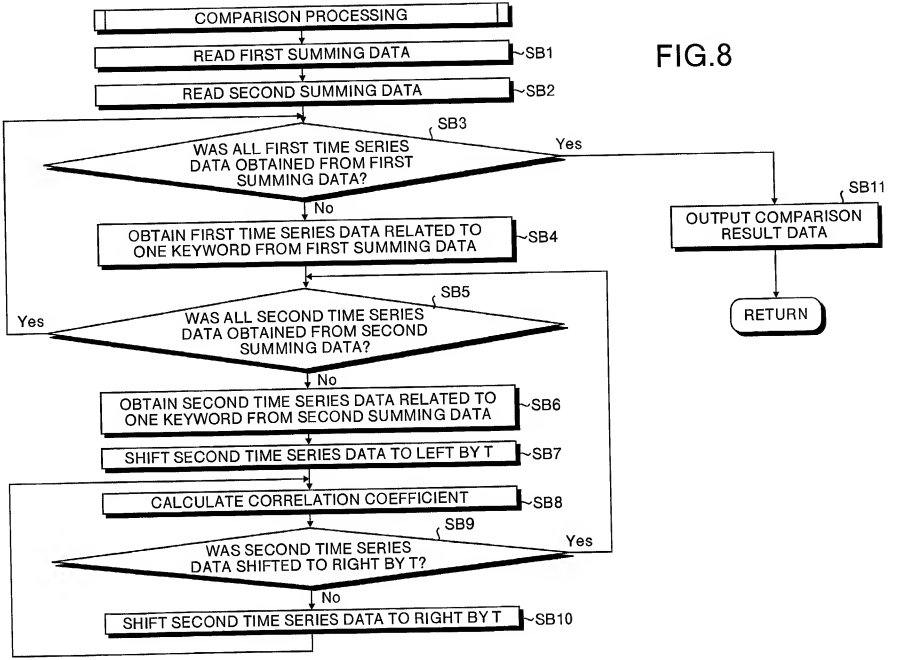
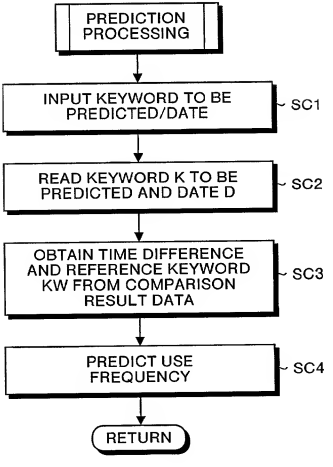

COMPARISON PROCESSING
READ FIRST SUMMING DATA
SB1
READ SECOND SUMMING DATA
SB2
SB3
WAS ALL FIRST TIME SERIES DATA OBTAINED FROM FIRST SUMMING DATA?
Yes
No
SB11
OUTPUT COMPARISON RESULT DATA
RETURN
OBTAIN FIRST TIME SERIES DATA RELATED TO ONE KEYWORD FROM FIRST SUMMING DATA
SB4
SB5
WAS ALL SECOND TIME SERIES DATA OBTAINED FROM SECOND SUMMING DATA?
Yes
No
OBTAIN SECOND TIME SERIES DATA RELATED TO ONE KEYWORD FROM SECOND SUMMING DATA
SB6
SHIFT SECOND TIME SERIES DATA TO LEFT BY T
SB7
CALCULATE CORRELATION COEFFICIENT
SB8
SB9
WAS SECOND TIME SERIES DATA SHIFTED TO RIGHT BY T?
Yes
No
SHIFT SECOND TIME SERIES DATA TO RIGHT BY T
SB10

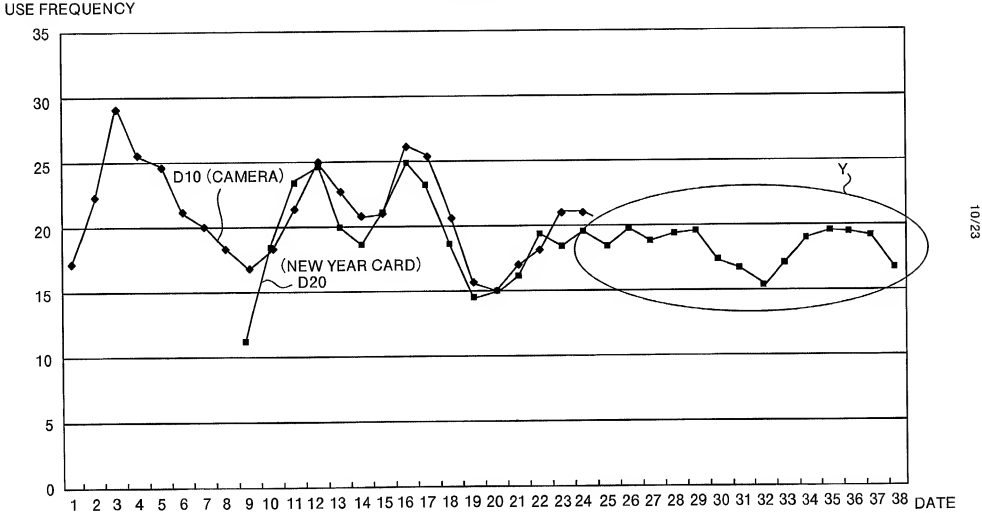
FIG.8

FIG.9



1005052-011802

FIG.10


USE FREQUENCY
35
30
25
20
15
10
5
0
D10 (CAMERA)
(NEW YEAR CARD)
D20
Y
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
DATE

2021TO00298 05-04-2021

FIG.11

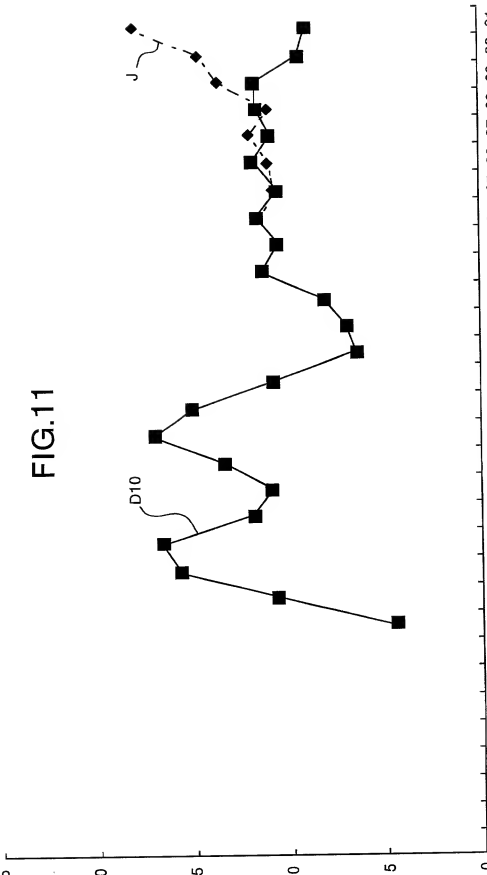


FIG.12

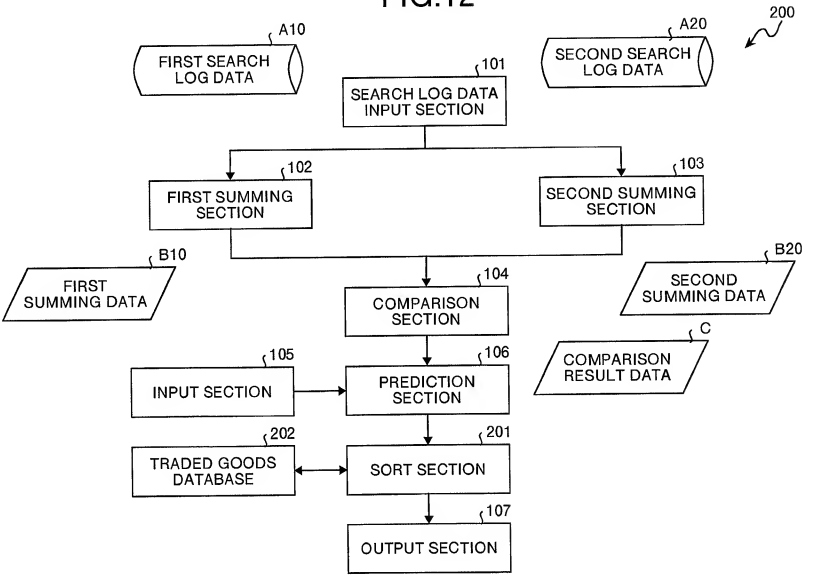

200
A10
FIRST SEARCH LOG DATA
A20
SECOND SEARCH LOG DATA
101
SEARCH LOG DATA INPUT SECTION
102
FIRST SUMMING SECTION
103
SECOND SUMMING SECTION
B10
FIRST SUMMING DATA
B20
SECOND SUMMING DATA
104
COMPARISON SECTION
C
COMPARISON RESULT DATA
105
INPUT SECTION
106
PREDICTION SECTION
202
TRADED GOODS DATABASE
201
SORT SECTION
107
OUTPUT SECTION

FIG.13

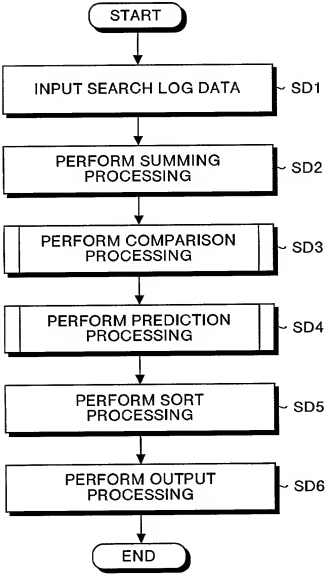


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FIG.14

E1

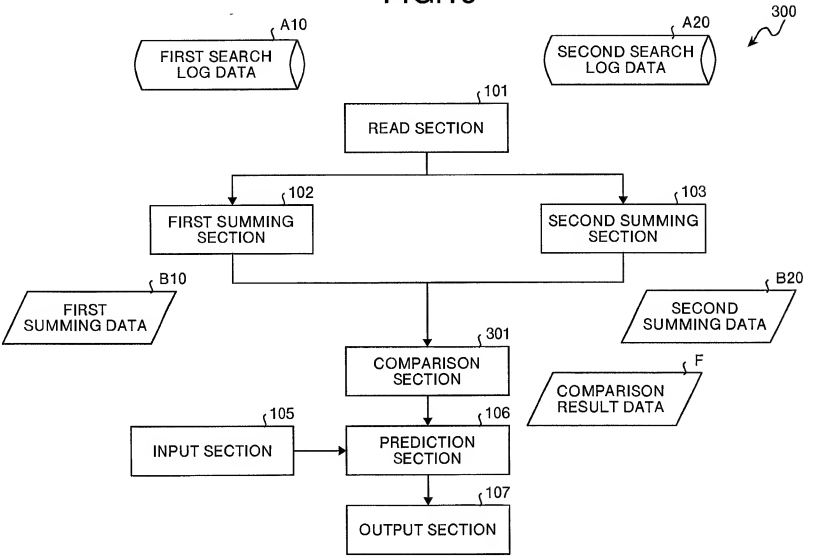
TRADED GOODS	PREDICTED USE FREQUENCY
DIGITAL CAMERA	25
CAMERA	36
FILM	12
STAND	3
FLASH	7
COMPACT CAMERA	20
SINGLE LENS REFLEX CAMERA	2

SORT

E2

TRADED GOODS	PREDICTED USE FREQUENCY
CAMERA	36
DIGITAL CAMERA	25
COMPACT CAMERA	20
FILM	12
FLASH	7
STAND	3
SINGLE LENS REFLEX CAMERA	2

FIG.15


A10
FIRST SEARCH LOG DATA
A20
SECOND SEARCH LOG DATA
300
101
READ SECTION
102
FIRST SUMMING SECTION
103
SECOND SUMMING SECTION
B10
FIRST SUMMING DATA
B20
SECOND SUMMING DATA
301
COMPARISON SECTION
F
COMPARISON RESULT DATA
105
INPUT SECTION
106
PREDICTION SECTION
107
OUTPUT SECTION

1005062.01802

FIG.16

F

FIRST TIME SERIES DATA	SECOND TIME SERIES DATA	CORRELATION COEFFICIENT	TIME DIFFERENCE	EXPANSION RATIO
CAMERA	NEW YEAR CARD	0.1	−T	50%
....				
CAMERA	NEW YEAR CARD	0.16	−T	100%
....				
CAMERA	NEW YEAR CARD	0.68	−T	200%
....				
CAMERA	NEW YEAR CARD	0.2	−T+1	50%
....				

2008TD"2980500T

FIG.17

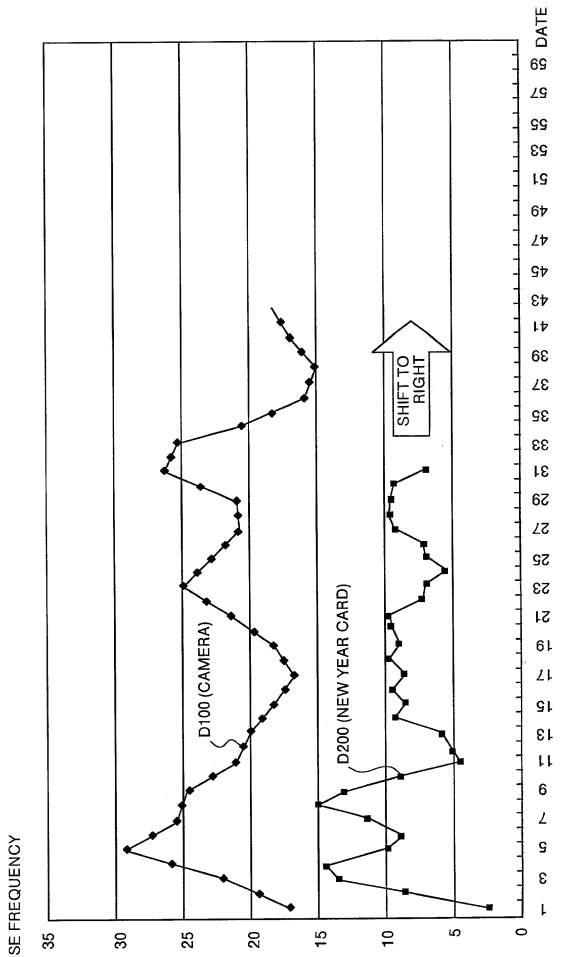


FIG.18

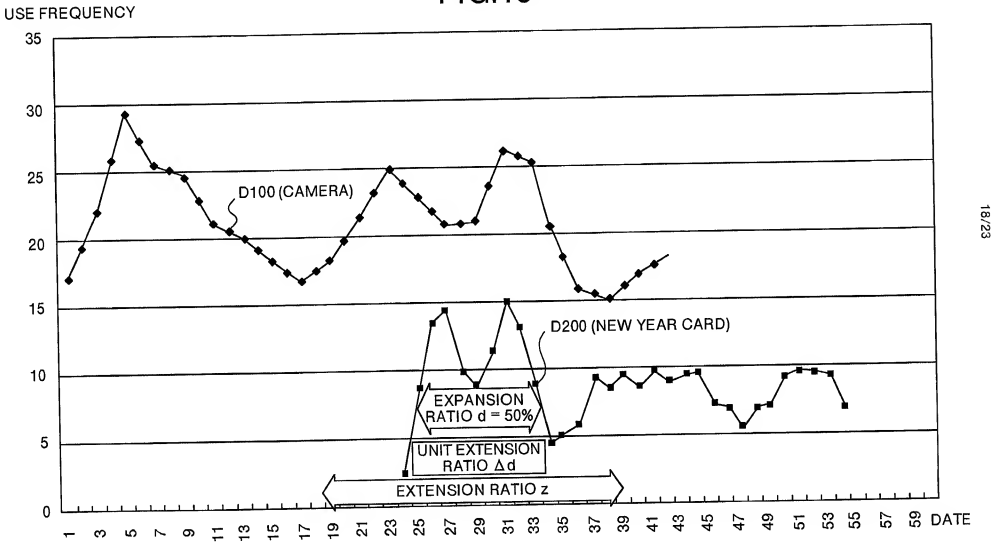

USE FREQUENCY
35
30
25
20
15
10
5
0
D100 (CAMERA)
D200 (NEW YEAR CARD)
EXPANSION RATIO d = 50%
UNIT EXTENSION RATIO Δd
EXTENSION RATIO z
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
39
41
43
45
47
49
51
53
55
57
59
DATE

FIG.19

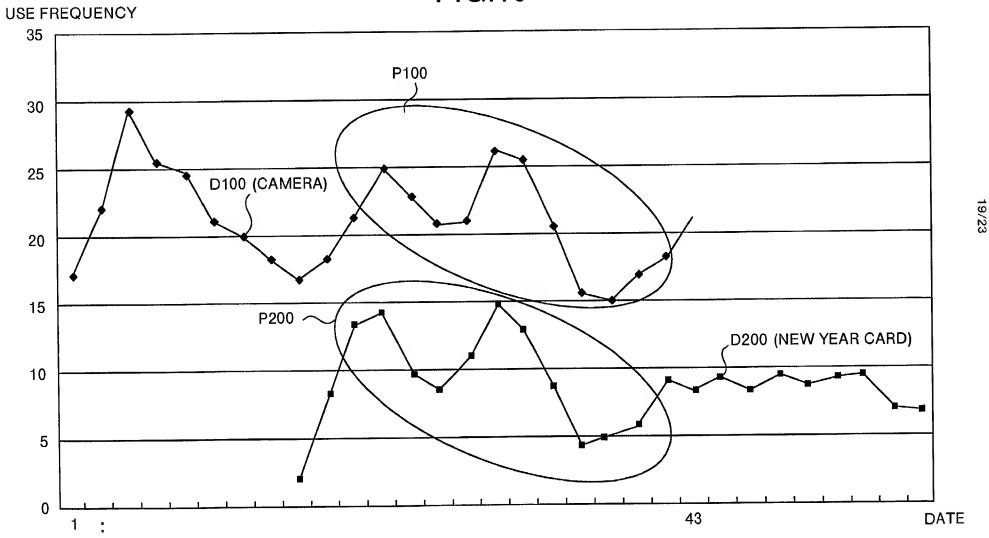
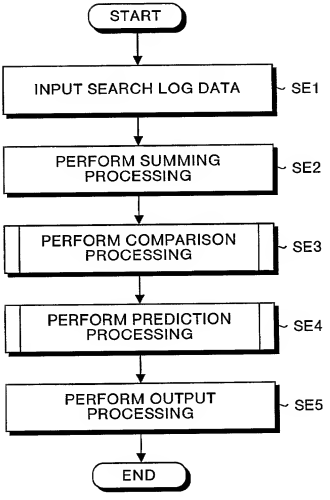

USE FREQUENCY
35
30
25
20
15
10
5
0
P100
D100 (CAMERA)
P200
D200 (NEW YEAR CARD)
1
:
43
DATE

FIG.20



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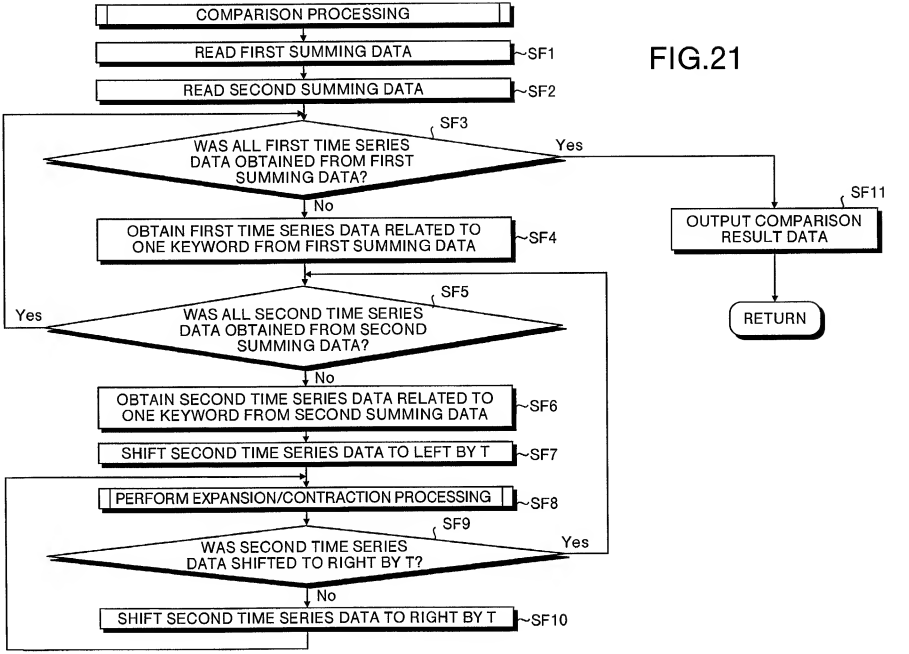
COMPARISON PROCESSING
READ FIRST SUMMING DATA
SF1
READ SECOND SUMMING DATA
SF2
SF3
WAS ALL FIRST TIME SERIES DATA OBTAINED FROM FIRST SUMMING DATA?
Yes
No
SF11
OUTPUT COMPARISON RESULT DATA
RETURN
OBTAIN FIRST TIME SERIES DATA RELATED TO ONE KEYWORD FROM FIRST SUMMING DATA
SF4
SF5
Yes
WAS ALL SECOND TIME SERIES DATA OBTAINED FROM SECOND SUMMING DATA?
No
OBTAIN SECOND TIME SERIES DATA RELATED TO ONE KEYWORD FROM SECOND SUMMING DATA
SF6
SHIFT SECOND TIME SERIES DATA TO LEFT BY T
SF7
PERFORM EXPANSION/CONTRACTION PROCESSING
SF8
SF9
WAS SECOND TIME SERIES DATA SHIFTED TO RIGHT BY T?
Yes
No
SHIFT SECOND TIME SERIES DATA TO RIGHT BY T
SF10

FIG.21

FIG.22

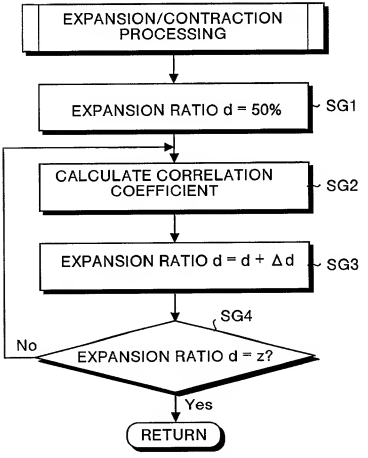

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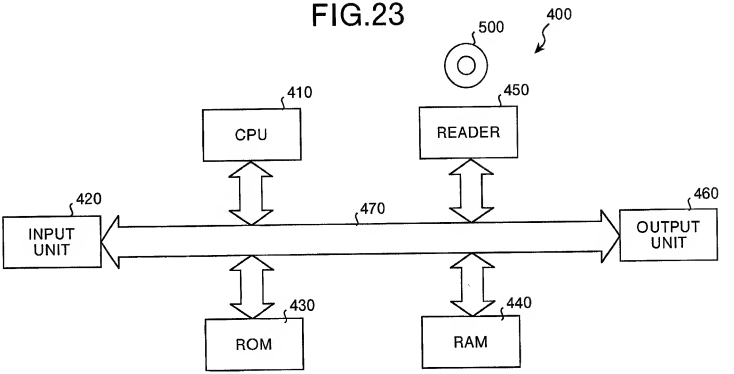
FIG.23


500
400
410
CPU
450
READER
420
INPUT UNIT
470
460
OUTPUT UNIT
430
ROM
440
RAM